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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,157	09/24/2003	Mitsunobu Yoshida	243207US2SRD	2806

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ALEXANDRIA, VA 22314

EXAMINER

KHAN, USMAN A

ART UNIT	PAPER NUMBER
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2622

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/668,157

Applicant(s)

YOSHIDA ET AL.

Examiner

Usman Khan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 02/23/2004, 12/23/2004, 06/27/2005, 12/16/2005, 01/18/2006, 12/15/2006 have been considered by the examiner. The submission is in compliance with the provisions of 37 CFR 1.97.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

The drawings are objected to because in some of the figures some of the reference numbers are numbered with the wrong parts for example: in figure 1 the number 41 and 42 on the top are switched to the wrong parts; also, in figure 1 number 10 which is used for the whole system is pointing on a part, also there are other minor informalities with this and other figures when dealing with labeling the parts with appropriate numbers, please check all drawings as related to the spec for proper

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numbering of the parts in the figures. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objection

Claims 2 - 10 are objected to because of the following informalities: Each of these dependent claims claim "A camera unit according to [...]" since these are dependent claims pointing back to the defined camera unit in the independent claim 1, "A camera unit according to [...]" should be changed to "The camera unit according to [...]" in each of these dependent claims. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In each of these claims applicant claims that "the regulating member is provided at the outside of the stator", this limitation is not taught in the drawings not the spec. It is unclear to the examiner to what this limitation encompasses in the scope of the invention. Appropriate correction is required.

Claims 2, 4, 7 - 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In each of these claims applicant claims a plurality of movable elements. It is unclear to the examiner to what this limitation encompasses in the scope of the invention since the applicant does not distinctly point out if each of these movable elements is holding a lens similar to the movable element holding a lens as claimed in claim 1. Also, in claims 4 and 7 the applicant claims "the movable element" whereas in the claim from which these claims depend there are a plurality of movable elements defined. It is unclear to the examiner to which movable element the applicant is pointing. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 11, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (US patent No. 5,400,070).

Regarding **claim 1**, Johnson et al. teaches a camera unit comprising: a movable element (figures 4 and 5; items 51 or 52) holding a lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*); a stator (figures 4 and 5; item 55) supporting the movable element (figures 4 and 5; items 51 or 52) so as to freely move reciprocally along the optical axis of the lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also, column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*); an image pickup element (figure 1 item 30) imaging an image which was image-formed by the lens (figure 4 and 5; item 53) (figure 1; also, column 2 lines 67 *et seq.*); a regulating member (figures 4 and 5; items 61 or 62) which regulates movement of the movable element (figures 4 and 5; items 51 or 52) within a movable range thereof (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*); and a control unit (figure 7 and column 6 lines 39 *et seq.*) controlling movement of the movable element (figures 4 and 5; items 51 or 52) in order to detecting a position of the movable element (figures 4 and 5; items 51 or 52) by making the movable element (figures 4 and 5; items 51 or 52) abut the regulating member (figures 4 and 5; items 61

or 62) (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 lines 39 *et seq.* and figure 7 item L1 and L2 regulate and measures position of the movable element).

Regarding **claim 3**, as mentioned above in the discussion of claim 1, Johnson et al. teaches all of the limitations of the parent claim. Additionally, Johnson et al teaches that the regulating member is provided at the image pickup element side of the movable element (figure 7, items L1 and L2 providing force to figures 4 and 5 as shown pf "F" from the imager direction "P").

Regarding **claim 5**, as mentioned above in the discussion of claim 1, Johnson et al. teaches all of the limitations of the parent claim. Additionally, Johnson et al teaches that the regulating member (figures 4 and 5; items 61 or 62) is provided at an object side of the movable element (figures 4 and 5; items 51 or 52) (figures 1, 4, and 5; object on "P" side and image sensor on "P" side).

Regarding **claim 11**, Johnson et al. teaches a camera unit controlling method which controls movement of the movable element (figures 4 and 5; items 51 or 52) in a camera unit comprising a movable element (figures 4 and 5; items 51 or 52) (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 line 3 - 7 and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)) holding a

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lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*), a stator (figures 4 and 5; item 55) supporting the movable element (figures 4 and 5; items 51 or 52) so as to freely move reciprocally along the optical axis of the lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also, column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*), an image pickup element (figure 1 item 30) imaging an image which was image-formed by the lens (figure 4 and 5; item 53) (figure 1; also, column 2 lines 67 *et seq.*), a regulating member (figures 4 and 5; items 61 or 62) which can regulate movement of the movable element (figures 4 and 5; items 51 or 52) within a movable range thereof (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*), the camera unit controlling method comprising: a moving step of making the movable element (figures 4 and 5; items 51 or 52) move toward the regulating member (figures 4 and 5; items 61 or 62) along the optical axis (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 line 3 - 7 and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)); a position detecting step of detecting a position of the movable element (figures 4 and 5; items 51 or 52) by making the movable element (figures 4 and 5; items 51 or 52) abut the regulating member (figures 4 and 5; items 61 or 62) (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 line 3 - 7 and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)); and a controlling step of controlling movement of the movable element (figures 4 and 5; items 51 or 52) on the basis of the

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detected position (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 lines 39 *et seq.* and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)).

Regarding **claim 12**, Johnson et al. teaches a camera unit controlling method comprising: a supporting step of supporting a movable element (figures 4 and 5; items 51 or 52) (figure 4, 5, and 6; also, column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*) which holds a lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*), so as to freely move reciprocally along the optical axis of the lens (figure 4 and 5; item 53) (figure 4, 5, and 6; also, column 5 lines 31 *et seq.* and column 8 lines 16 *et seq.*); a moving step of making the movable element (figures 4 and 5; items 51 or 52) move along the optical axis of the lens (figure 4 and 5; item 53) (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 line 3 - 7 and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)); an image picking-up step of imaging an image which was image-formed by the lens (figure 4 and 5; item 53) (figure 1; also, column 2 lines 67 *et seq.*); a position detecting step of detecting a position of the movable element (figures 4 and 5; items 51 or 52) by making the movable element (figures 4 and 5; items 51 or 52) abut the regulating member (figures 4 and 5; items 61 or 62) provided within a movable range of the movable element (figures 4 and 5; items 51 or 52) (figure 4, 5, 6, and 7; also column

5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 line 3 - 7 and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)); and a controlling step of controlling movement of the movable element (figures 4 and 5; items 51 or 52) on the basis of the detected position (figure 4, 5, 6, and 7; also column 5 lines 31 *et seq.* in figures 4 and 5 items 61 and 62, and 64 not shown but mentioned in column 6 lines 39 *et seq.* and figure 7 item L1 and L2 regulate and measures position of the movable element (figures 4 and 5; items 51 or 52)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US patent No. 5,400,070) in further view of Katoh et al. (US patent No. 5,561,460).

Regarding **claim 2**, as mentioned above in the discussion of claim 5, Johnson et al. teaches all of the limitations of the parent claim. However, Johnson et al. fails to disclose that a plurality of movable elements are provided. Katoh et al., on the other hand teaches that a plurality of movable elements are provided.

More specifically, Katoh et al. discloses that it is well known in the art to use a plurality of movable elements (figure 1; items 203 and 204; and column 1 lines 26 *et seq.*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Katoh et al. with the teachings of Johnson et al. to achieve higher resolution image as taught in column 1 lines 55 – 57 of Katoh et al.

Regarding **claim 4**, as mentioned above in the discussion of claim 2, Johnson et al. and Katoh et al. teach all of the limitations of the parent claim. Additionally, Johnson et al teaches that the regulating member is provided at the image pickup element side of the movable element (figure 7, items L1 and L2 providing force to figures 4 and 5 as shown pf “F” from the imager direction “P”).

Regarding **claim 7**, as mentioned above in the discussion of claim 1, Johnson et al. and Katoh et al. teach all of the limitations of the parent claim. Additionally, Johnson et al teaches that the regulating member (figures 4 and 5; items 61 or 62) is provided at an object side of the movable element (figures 4 and 5; items 51 or 52) (figures 1, 4, and 5; object on “P” side and image sensor on “P” side).

Regarding **claim 9**, as mentioned above in the discussion of claim 2, Johnson et al. and Katoh et al. teach all of the limitations of the parent claim. Additionally, Johnson

et al teaches that the regulating member is provided between said plurality of movable elements (figure 7, items L1 and L2, i.e. regulating members, providing force to figures 4 and 5 as shown pf "F" from the imager direction "P"). Also, another regulating member is provided in figures 4 and 5; items 61 or 62. These two in combination when combined with Katoh et al. produces a regulating member between a plurality of movable elements.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place a regulating member at the center between the plurality of movable elements to provide support for the movable elements.

Allowable Subject Matter

Claim 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter for **claim 10**: "A camera unit according to claim 2, wherein a first groove portion which is formed along the optical axis of the lens and in which a basic end portion thereof is provided at the object side is formed at a first movable element among said plurality of movable elements, and a second groove portion which is formed along the optical axis of the lens and in which a basic end portion thereof is provided at the image pickup element side is formed at a second movable element, and the **regulating member has a first member** in which a distal end portion thereof is extendedly

provided so as to direct toward the object side along the optical axis of the lens in the stator, and **which is not engaged with the first movable element, and in which the distal end portion thereof abuts the basic end portion of the second groove portion**, and a **second member** in which a distal end portion thereof is extendedly provided so as to direct toward the image pickup element side along the optical axis of the lens in the stator, and **which is not engaged with the second movable element, and in which the distal end portion thereof abuts the basic end portion of the first groove portion.**" Is not discussed or suggested in any of the prior art that was searched.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hirasawa et al. (US patent No. 5,933,187) teaches multiple lenses being driven by shafts and the position of the lens is detected.

Hirasawa et al. (US patent No. 6,236,431) teaches multiple lenses being driven by shafts and the position of the lens is detected.

Hata (US patent No. 6,836,057) teaches a lens being driven by a drive mechanism employing an electromechanical transducer and the position of the lens is detected.


Sasaki et al. (US patent No. 6,804,068) teaches multiple lenses being driven by shafts and the position of the lens is detected.


Ueyama et al. (US patent No. 6,134,057) teaches multiple lenses being driven by shafts and the position of the lens is detected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usman Khan whose telephone number is (571) 270-1131. The examiner can normally be reached on Mon-Thru 6:45-4:15; Fri 6:45-3:15 or Alt. Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Usman Khan
12/16/2006
Patent Examiner
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